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ABSTRACT

This document provides criteria which are designed to be used by school administrators, professional staff, and community representatives to assess mathematics programs and to provide a basis for establishing goals in teaching mathematics. Other possible uses for the information generated by the criteria include: validation of exemplary programs and promising practices; self appraisal (by building, district, or community level); development of long-range goals; planning for staff development, inservice and training activities; and disseminating information and improving public relations. Major areas addressed include: (1) staffing; (2) leadership; (3) professional development; (4) diagnosing and prescribing; (5) scope and sequence; (6) resources; (7) programs; and (8) program evaluation. A rating for each criterion is obtained by using a "yes or no" response or by using a 5-item rating scale (not started, started/little progress, some progress, almost achieved, achieved). A district profile matrix is also provided. (JN)

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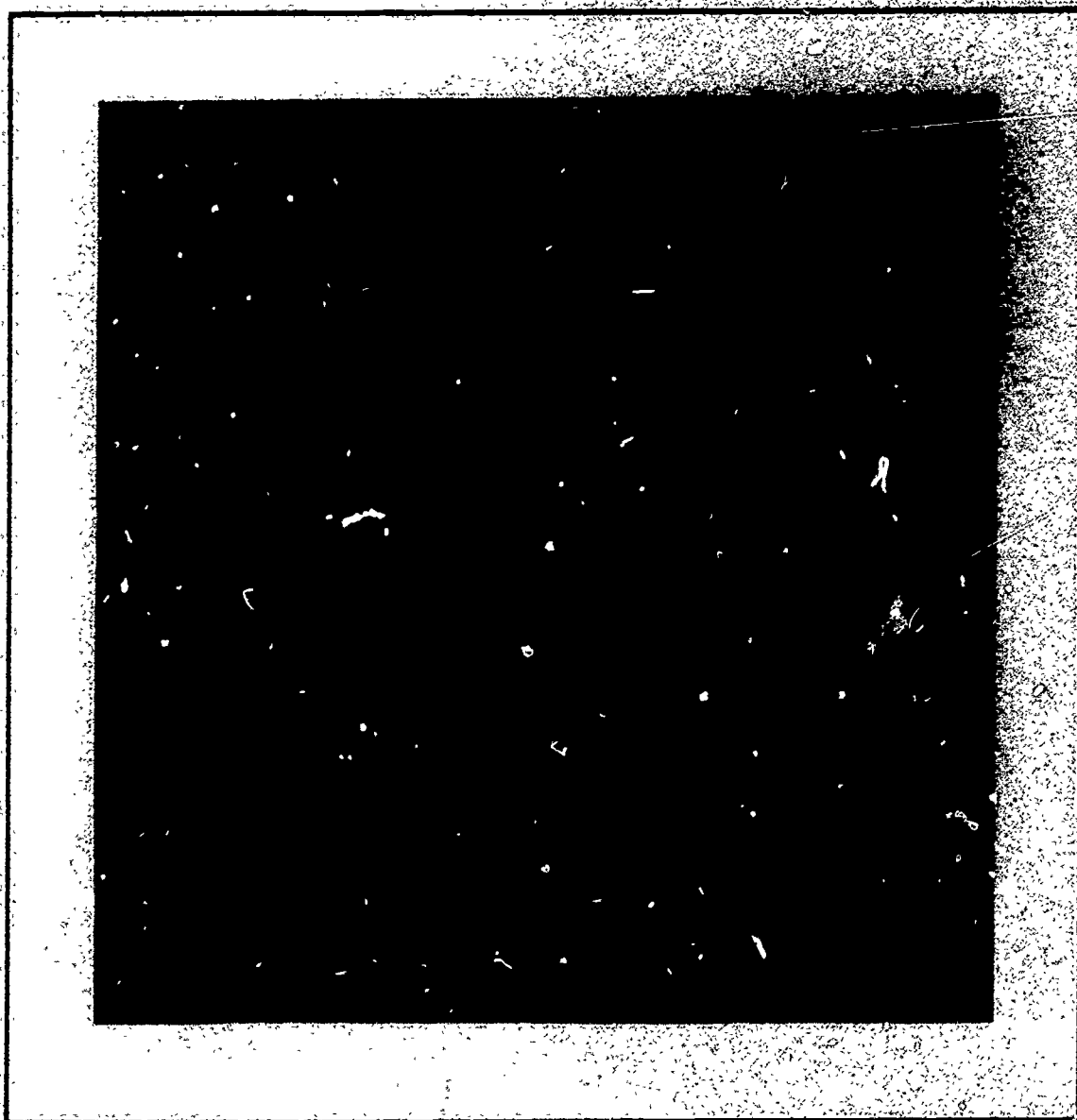
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Promising Practices

Criteria for Excellence



Mathematics

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Criteria for Excellence MATHEMATICS

These criteria were designed to be used by school administrators, professional staff and community representatives to assess mathematics programs and to provide a basis for establishing goals in teaching mathematics. Other possible uses for information generated by these criteria include:

- Validation of exemplary programs and promising practices
- Self-appraisal (by building, district, community level)
- Development of long range goals
- Planning for staff development, inservice and training activities
- Disseminating information and improving public relations.

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CRITERIA OF EXCELLENCE FOR MATHEMATICS

STAFFING

1. Classroom Teachers

- | | | | | | |
|---|-----|----|---|---|---|
| A. Are all math teachers graduates of an approved Teacher Education program, and do they possess Type A Alaska Teachers Certificates? | Yes | No | | | |
| B. Do all elementary teachers have a minimum of nine semester hours in mathematics for elementary teachers including a course in methods of teaching elementary math? | 1 | 2 | 3 | 4 | 5 |
| C. Do all secondary math teachers have a minimum of a college minor in mathematics for secondary teachers including a course in methods of teaching secondary math? | 1 | 2 | 3 | 4 | 5 |

2. Paraprofessionals and Volunteers

- | | | | | | |
|--|---|---|---|---|---|
| A. Is there an organized program of recruitment of paraprofessionals and volunteers? | 1 | 2 | 3 | 4 | 5 |
| B. Is an appropriate training program provided for those assisting in math instruction, including training in: | 1 | 2 | 3 | 4 | 5 |
| 1. Instructional techniques appropriate to the duties of the paraprofessional or volunteer? | | | | | |
| 2. Record keeping? | | | | | |
| 3. Administrative framework? | | | | | |
| 4. Physical plant? | | | | | |
| 5. Materials? | | | | | |
| 6. Competencies being developed at each level? | | | | | |
| 7. Operation of equipment? | | | | | |
| C. Is there a continuing inservice based on assessed needs? | 1 | 2 | 3 | 4 | 5 |

LEADERSHIP

- | | | | | | |
|---|---|---|---|---|---|
| 3. Has a qualified individual(s) been identified and given the authority, responsibility and time to develop and coordinate the mathematics program as follows: | | | | | |
| A. Does the coordinator understand the components of the total mathematics program and is he/she sensitive to the needs of students and teachers? | 1 | 2 | 3 | 4 | 5 |

Rating Scale:

(1) not started (2) started/little progress (3) some progress (4) almost achieved (5) achieved

| | | | | | |
|---|---|---|---|---|---|
| B. Does the coordinator provide the leadership and resources to foster the development, review and updating of an excellent mathematics program? | 1 | 2 | 3 | 4 | 5 |
| C. Does the coordinator hire well qualified personnel, or recommend for hiring, if not in a hiring position? | 1 | 2 | 3 | 4 | 5 |
| D. Does the coordinator insist on inservice teacher education in math? | 1 | 2 | 3 | 4 | 5 |
| E. Does the coordinator demonstrate a commitment to the mathematics program by presenting a strong case for budgetary support to the school board, the central administration, and the community? | 1 | 2 | 3 | 4 | 5 |
| F. Does the coordinator provide encouragement and resources for teachers to attend professional meetings? | 1 | 2 | 3 | 4 | 5 |

PROFESSIONAL DEVELOPMENT

| | | | | | |
|--|---|---|---|---|---|
| 4. Do those involved in the teaching of mathematics receive continuing inservice education in the application of mathematical skills as follows: | | | | | |
| A. Are inservice programs based on the ongoing assessment of program needs in mathematics instruction? | 1 | 2 | 3 | 4 | 5 |
| B. Are provisions made for participants to be involved in professional development activities? | 1 | 2 | 3 | 4 | 5 |

DIAGNOSING AND PRESCRIBING

| | | | | | |
|--|---|---|---|---|---|
| 5. Is an ongoing comprehensive system of evaluation designed to include: | | | | | |
| A. Proficiency evaluation for each student upon entry? | 1 | 2 | 3 | 4 | 5 |
| B. Ongoing assessment of skills? | 1 | 2 | 3 | 4 | 5 |
| C. Assessment of degree to which local goals have been met? | 1 | 2 | 3 | 4 | 5 |
| 6. Have personalized programs been developed to meet identified needs? | 1 | 2 | 3 | 4 | 5 |
| 7. Is the learner informed of progress, and does learner help to plan personal goals and objectives? | 1 | 2 | 3 | 4 | 5 |
| 8. In addition to the regular program, has provision been made for: | | | | | |
| A. Gifted and talented students? | 1 | 2 | 3 | 4 | 5 |
| B. Remediation of students? | 1 | 2 | 3 | 4 | 5 |
| C. Special interests of students? | 1 | 2 | 3 | 4 | 5 |

Rating Scale:

(1) not started (2) started/little progress (3) some progress (4) almost achieved (5) achieved

SCOPE AND SEQUENCE

9. Is the mathematics program developmental, based on a scope and sequence of skills K-12 as follows:
- | | | | | | |
|--|---|---|---|---|---|
| A. Scope and sequence of skills have been adopted and are used in instruction and evaluation? | 1 | 2 | 3 | 4 | 5 |
| B. Horizontal and vertical articulation procedures have been established and are being followed? | 1 | 2 | 3 | 4 | 5 |

RESOURCES

- | | | | | | |
|---|---|---|---|---|---|
| 10. Are resource materials and activities available and chosen in accordance with the competency of each student? | 1 | 2 | 3 | 4 | 5 |
| 11. Is there a continual review and inspection of new materials? | 1 | 2 | 3 | 4 | 5 |
| 12. Is ordering of materials carefully coordinated to meet program objectives? | 1 | 2 | 3 | 4 | 5 |
| 13. Is a resource materials center accessible to users? | 1 | 2 | 3 | 4 | 5 |
| 14. Does each center have a collection which contains current publications relating to mathematics education? | 1 | 2 | 3 | 4 | 5 |
| 15. Are written guides provided the teachers for effective use of resources? | 1 | 2 | 3 | 4 | 5 |
| 16. Are services of specialized personnel available as an integral part of the mathematics program? | 1 | 2 | 3 | 4 | 5 |

PROGRAM

- | | | Yes | No |
|---|------------------------------------|-------|-------|
| 17. Do some components of the mathematics program include development of: | | | |
| | Algebraic concepts? | _____ | _____ |
| | Computer and calculator awareness? | _____ | _____ |
| | Development of mathematics? | _____ | _____ |
| | Geometric concepts? | _____ | _____ |
| | Graphs, making and reading? | _____ | _____ |
| | Measurement skills? | _____ | _____ |
| | Metric system awareness? | _____ | _____ |
| | Number theory? | _____ | _____ |
| | Numeration system? | _____ | _____ |
| | Operations involving: | | |
| | Decimals? | _____ | _____ |
| | Fractions? | _____ | _____ |
| | Integer? | _____ | _____ |
| | Whole numbers? | _____ | _____ |
| | Place value concepts? | _____ | _____ |
| | Probability and statistics? | _____ | _____ |
| | Ratio, proportions, percents? | _____ | _____ |
| | Reading mathematics: | | |
| | Comprehension? | _____ | _____ |
| | Directions? | _____ | _____ |
| | Word problems? | _____ | _____ |
| Reasoning | Logic? | _____ | _____ |
| | Problem-solving? | _____ | _____ |
| Recreational math? | | _____ | _____ |

Rating Scale:

(1) not started (2) started/little progress (3) some progress (4) almost achieved (5) achieved

| | | | | | |
|---|---|---|---|---|---|
| 18. Is accommodation made for varying learning styles, rates and abilities? | 1 | 2 | 3 | 4 | 5 |
| 19. Has provision been made through extended learning for gifted and talented students? | 1 | 2 | 3 | 4 | 5 |
| 20. Has provision been made for students with learning difficulties? | 1 | 2 | 3 | 4 | 5 |
| 21. Is bilingual instruction provided as determined by the goals and objectives of the local community? | 1 | 2 | 3 | 4 | 5 |
| 22. Is skill attainment continually recorded and maintained throughout the grades? | 1 | 2 | 3 | 4 | 5 |
| 23. Do teachers of mathematics at all levels teach the reading skills that apply to mathematics? | 1 | 2 | 3 | 4 | 5 |
| 24. Is the learner guided to realize how useful and enjoyable mathematics can be? | 1 | 2 | 3 | 4 | 5 |
| 25. Is provision made to incorporate the findings of current research relating to how students learn mathematics? | 1 | 2 | 3 | 4 | 5 |
| 26. Is a wide range of manipulative materials available for student use? | 1 | 2 | 3 | 4 | 5 |
| 27. Is the physical facility adequate for the students' programs and the teaching style of the teacher? | 1 | 2 | 3 | 4 | 5 |

PROGRAM EVALUATION

| | | | | | |
|---|---|---|---|---|---|
| 28. Does the administrator responsible for the program have a planned procedure for evaluating the mathematics program? | 1 | 2 | 3 | 4 | 5 |
| 29. Have lay members of the community been involved in evaluating the mathematics program? | 1 | 2 | 3 | 4 | 5 |
| 30. Are teachers involved on a regular basis in program evaluation? | 1 | 2 | 3 | 4 | 5 |
| 31. Do students participate in a planned procedure of program evaluation? | 1 | 2 | 3 | 4 | 5 |
| 32. Are changes incorporated as needed? | 1 | 2 | 3 | 4 | 5 |

Rating Scale:

(1) not started (2) started/little progress (3) some progress (4) almost achieved (5) achieved

**Criteria of Excellence for
Mathematics
DISTRICT PROFILE SHEET**

Mark your rating for each numbered item on a scale of 1 to 5 or any point in between.

| | Not Started 1 | Little Progress 2 | Some Progress 3 | Almost Achieved 4 | Achieved 5 |
|--|---------------------|-------------------------|-----------------------|-------------------------|---------------|
| STAFFING | | | | | |
| 1A Teachers certified | | | | | |
| B Teachers have nine hours elementary math | | | | | |
| C Teachers have high school math minor | | | | | |
| 2A Paraprofessional recruitment | | | | | |
| B Paraprofessional program training | | | | | |
| C Paraprofessional inservice | | | | | |

LEADERSHIP – program coordinator

| | | | | | |
|------------------------------------|--|--|--|--|--|
| 3A Knows components | | | | | |
| B Fosters development, review | | | | | |
| C Hires qualified people | | | | | |
| D Insists on inservice | | | | | |
| E Is committed | | | | | |
| F Encourages professional meetings | | | | | |

PROFESSIONAL DEVELOPMENT

| | | | | | |
|-------------------------|--|--|--|--|--|
| 4A Based on needs | | | | | |
| B Participants involved | | | | | |

DIAGNOSING AND PRESCRIBING

| | | | | | |
|-----------------------------|--|--|--|--|--|
| 5A Proficiency evaluation | | | | | |
| B Ongoing assessment | | | | | |
| C Local goals | | | | | |
| 6 Personalized programs | | | | | |
| 7 Learner involved | | | | | |
| 8A Gifted and talented | | | | | |
| B Remedial students | | | | | |
| C Special student interests | | | | | |

SCOPE AND SEQUENCE

| | | | | | |
|--------------------------------------|--|--|--|--|--|
| 9A Use in instruction and evaluation | | | | | |
| B Articulation | | | | | |

RESOURCES

| | | | | | |
|----------------------------------|--|--|--|--|--|
| 10 Activities to student ability | | | | | |
| 11 Continual review | | | | | |
| 12 Coordinated to objectives | | | | | |
| 13 Accessible | | | | | |
| 14 Current publications | | | | | |
| 15 Written guides | | | | | |
| 16 Specialists available | | | | | |

(Continued on other side)

| PROGRAM | | Not Started 1 | Little Progress 2 | Some Progress 3 | Almost Achieved 4 | Achieved 5 |
|---------|------------------------|---------------------|-------------------------|-----------------------|-------------------------|---------------|
| 17 | Contains basics | | | | | |
| 18 | Learning styles, rates | | | | | |
| 19 | Extended learning | | | | | |
| 20 | Learning difficulties | | | | | |
| 21 | Bilingual instruction | | | | | |
| 22 | Skill recordkeeping | | | | | |
| 23 | Content reading | | | | | |
| 24 | Useful/enjoyable | | | | | |
| 25 | Current research | | | | | |
| 26 | Manipulatives | | | | | |
| 27 | Physical facilities | | | | | |

PROGRAM EVALUATION

| | | | | | |
|----|----------------------|--|--|--|--|
| 28 | Planned procedure | | | | |
| 29 | Lay involvement | | | | |
| 30 | Teacher involvement | | | | |
| 31 | Student involvement | | | | |
| 32 | Changes incorporated | | | | |

Based on Mathematics Criteria of Excellence, by:

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